

Figure 1 is a scatter plot showing the spatial distribution of various ion populations in the X_{GSE} vs Z_{GSE} plane. The x-axis (X_{GSE}) ranges from 40 to -40, and the y-axis (Z_{GSE}) ranges from -20 to 20. The plot includes several data series and contour lines:

- Protons (red dots):** Form a dense cluster around the origin ($0, 0$).
- Alpha particles (blue dots):** Also clustered around the origin, slightly offset from the protons.
- Ionospheric populations (green dots):** Located at low Z_{GSE} values, around $Z_{GSE} \approx -5$ to -10 .
- Solar wind populations (brown dots):** Located at high X_{GSE} values, around $X_{GSE} \approx 35$ to 40 .
- Other populations (black dots):** Located near the Moon's position, around $X_{GSE} \approx 25$ to 30 and $Z_{GSE} \approx -5$ to -10 .

Contour lines represent density levels, with labels E and B indicating specific regions. The label $C2$ is also present near the origin. The text "MOON" and "GT" are placed near the Moon's position. The text "T1", "T2", "E", and "B" are placed near the ionospheric and solar wind populations. The text "E-C2" is placed near the origin.

